

## SEQUENCE LISTING

<110> SUNTORY LIMITED

<120> A gene encoding an enzyme for catalyzing biosynthesis of lignan, and use thereof

<130> SU0411

<150> JP 2003-341313

<151> 2003-09-30

<150> JP 2003-432383

<151> 2003-12-26

<160> 79

<170> PatentIn Ver. 2.1

<210> 1

<211> 506

<212> PRT

<213> Sesamum indicum

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<223> SiP189

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Thr Lys Leu Pro Pro Ser Pro Pro Gly Trp Leu Pro Val Ile Gly His  
35 40 45

Ala His Leu Met Lys Asn Leu Leu His Arg Thr Leu Tyr Asp Phe Ser  
50 55 60

Gln Lys Leu Gly Pro Ile Phe Ser Ile Arg Phe Gly Ser Arg Leu Val  
65 70 75 80

Val Val Val Ser Ser Ser Leu Val Glu Glu Cys Phe Thr Lys Tyr  
85 90 95

Asp Ile Val Leu Ala Asn Arg Pro Gln Ala Ser Val Asp Arg Arg Ser  
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Leu Gly Phe Ser Thr Thr Ser Val Ile Gly Ala Pro Tyr Gly Asp His  
115 120 125

Trp Arg Asn Leu Arg Lys Leu Cys Asp Leu Glu Val Phe Ala Pro Thr  
130 135 140

Arg Leu Ala Ser Phe Leu Ser Ile Arg Leu Asp Glu Arg Asp Arg Met  
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165 170 175

Leu Glu Ala Lys Ile Val Glu Leu Thr Phe Asn Asn Ile Met Arg Met  
180 185 190

Val Ala Ala Lys Arg Tyr Tyr Gly Glu Ala Glu Asp Asp Glu Glu  
195 200 205

Ala Lys Arg Phe Arg Asp Leu Thr Lys Glu Ala Leu Glu Leu Thr Ser  
210 215 220

Ala Ser Asn Pro Gly Glu Ile Phe Pro Ile Leu Arg Trp Leu Gly Cys  
225 230 235 240

Asn Gly Leu Glu Lys Lys Leu Ala Val His Ser Arg Lys Thr Asp Glu  
245 250 255

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260 265 270

Thr Met Val Asp His Leu Leu Ser Leu Gln Glu Ser Gln Pro Glu Tyr  
275 280 285

Tyr Thr Asp Glu Ile Ile Thr Gly Leu Ile Val Ala Leu Ile Ile Ala  
290 295 300

Gly Thr Asp Ala Ser Val Val Thr Thr Glu Trp Ala Met Ser Leu Leu  
305 310 315 320

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325 330 335

Leu Val Gly His Glu Arg Met Val Asp Glu His Asp Leu Pro Lys Leu  
340 345 350

Arg Tyr Leu His Cys Ile Val Leu Glu Thr Leu Arg Leu Phe Pro Ser  
355 360 365

Val Pro Thr Leu Val Pro His Glu Pro Ser Glu Asp Cys Lys Ile Gly  
370 375 380

Gly Tyr Asn Val Pro Lys Gly Thr Met Val Leu Val Asn Ala Trp Ala  
385 390 395 400

Ile His Arg Asp Pro Lys Val Trp Asp Asp Pro Leu Ser Phe Lys Pro  
405 410 415

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<213> Sesamum indicum

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<223> Description of Artificial Sequence: Artificially  
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<210> 4  
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, Si18SrRNA-RV

<400> 4  
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21

<210> 5  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP90A-FW

<400> 5  
tttccgatg aagagattgt tgac

24

<210> 6  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP90A-RV

<400> 6  
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18

<210> 7  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
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cttaatgttc aaatgataat ggat

24

<210> 8

<211> 18  
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<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP72B-RV

<400> 8  
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<210> 9  
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<223> Description of Artificial Sequence: Artificially  
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<400> 9  
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<210> 10  
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<223> Description of Artificial Sequence: Artificially  
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<210> 11  
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<212> DNA  
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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP84A-FW

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cttaccctgt acaatatcaa agca

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<210> 12  
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<223> Description of Artificial Sequence: Artificially  
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<210> 13  
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<212> DNA  
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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP96A-FW

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<210> 14  
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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP96A-RV

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Synthesized Primer Sequence, CYP710A-FW

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<220>  
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Synthesized Primer Sequence, CYP86A-FW

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<210> 18  
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<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP86A-RV

<400> 18  
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18

<210> 19  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP74-FW

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<210> 20  
<211> 18  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP74-RV

<400> 20  
acgaaatctct ccggcaca

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<210> 21  
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<400> 21

ttaacggata ctgagattaa agcct

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<210> 22

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<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP75B-RV

<400> 22

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<210> 23

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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP79F-FW

<400> 23

gtcacaccag acgaaatcaa agct

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<210> 24

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<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP79F-RV

<400> 24

agtgacgct ccggtttg

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<210> 25

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Synthesized Primer Sequence, CYP81D-FW

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<210> 26  
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<220>  
<223> Description of Artificial Sequence: Artificially  
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<210> 27  
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Synthesized Primer Sequence, CYP705A-FW

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<210> 28  
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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP705A-RV

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tttactgatg ataatgtcaa agcc 24

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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, CYP83A-RV

<400> 30  
agaaaacctct cgggccta

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<210> 31  
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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP168-FW

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21

<210> 32  
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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP168-RV

<400> 32  
aaataatgat agctaaattt t

21

<210> 33  
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<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP189-FW

<400> 33  
tcgttttat ccatcaggct t

21

<210> 34  
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<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP189-RV

&lt;400&gt; 34

caaacgttgg aaacctgacg a

21

&lt;210&gt; 35

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Artificially  
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&lt;400&gt; 35

ggatgttctg tggaagttaa a

21

&lt;210&gt; 36

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP236-RV

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atctaagttt catgcagttt t

21

&lt;210&gt; 37

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP249-FW

&lt;400&gt; 37

ctaagcttca aaatgtcgat a

21

&lt;210&gt; 38

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP249-RV

&lt;400&gt; 38

ccaaacttact tattacagat a

21

<210> 39  
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Synthesized Primer Sequence, SiP288-FW

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aaaatggtgg gaatttgtta t

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<210> 40  
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<210> 41  
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Synthesized Primer Sequence, GR-SiP168-RV

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32

<210> 42  
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Synthesized Primer Sequence, GR-SiP168-Nest-RV

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gttaggtttg gagagttt

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<210> 43  
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<212> DNA  
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<220>  
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Synthesized Primer Sequence, GR-SiP189-RV

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31

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Synthesized Primer Sequence, GR-SiP189-Nest-RV

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28

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Synthesized Primer Sequence, GR-SiP236-Nest-RV

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tataaagctt attgttat

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<210> 47  
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## Synthesized Primer Sequence, SiP168-BamH1-FW

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ggatccaaaa gagcaaatta tggatctact act 33

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Synthesized Primer Sequence, SiP168-Xhol-RV

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ctcgagaagg gaaaataatg atagctaaat ttt 33

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Synthesized Primer Sequence, SiP189-Xhol-RV

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Synthesized Primer Sequence, SiP236-Xhol-RV

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Arg Pro Pro Gly Pro Pro Gly Leu Pro Phe Leu Gly Asn Leu Leu Gln  
35 40 45  
Tyr Asn Pro Ser Asp Leu His Leu Arg Leu Thr Lys Leu Ser Glu Lys  
50 55 60  
Tyr Gly Pro Leu Met Tyr Met Thr Phe Val Gly Lys Pro Val Val Val  
65 70 75 80  
Ile Ser Ser Ala Arg Val Ala Lys Glu Ala Leu Lys Tyr Asn Asp Leu  
85 90 95  
Ala Phe Ser Ser Arg Pro Ser Thr Ile Ala Ser Arg Lys Val Ala Tyr  
100 105 110  
Asn Asn Ser Asp Ile Ser Met Ser Pro Tyr Thr Glu Tyr Trp Arg Glu  
115 120 125  
Leu Arg Lys Met Val Val Leu Arg Leu Phe Thr Val Lys Gln Val Asn  
130 135 140  
Ser Phe Arg Pro Ala Arg Glu Glu Glu Val Ala Arg Met Val Lys Glu  
145 150 155 160  
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165 170 175  
Ala Leu Ser Leu Ser Ser Arg Met Ile Ser Arg Phe Ala Leu Gly Lys  
180 185 190  
Arg Tyr Asp Glu Glu Asn Gly Pro Glu Lys Arg Arg Phe Asp Arg Ile  
195 200 205  
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210 215 220  
Ser Pro Trp Leu Gly Trp Ile Asp Arg Leu Cys Gly Lys Val Ser Gln  
225 230 235 240  
Leu Glu Lys Ala Phe Lys Asp Leu Asp Ser Leu Tyr Glu Glu Met Ile  
245 250 255  
Ala Glu His Leu Ser Pro Asn Arg Pro Glu Ser Met Asn Gly Asp Ile  
260 265 270  
Leu Asp Met Leu Ile Gln Met Lys Glu Asp Arg Ser Ser Thr Val Gln  
275 280 285

Ile Asp Trp Asp His Ile Lys Gly Val Leu Met Asn Met Phe Val Ala  
 290 295 300

Gly Thr Asp Thr Thr Ala Ala Thr Ile Thr Trp Ala Met Thr Ala Leu  
 305 310 315 320

Ile Lys Lys Pro Gln Val Leu Asn Lys Val Gln Gln Glu Ile Arg Ser  
 325 330 335

Val Val Gly Lys Lys Gly Ser Val Ala Glu Asp Asp Ile Gln Lys Leu  
 340 345 350

Pro Tyr Phe Lys Ala Val Val Lys Glu Thr Leu Arg Leu Tyr Ala Pro  
 355 360 365

Ala Pro Leu Ser Leu Pro Arg Leu Thr Ile Lys Ser Ser Val Ile Asp  
 370 375 380

Gly Tyr Asp Ile Glu Pro Asn Thr Ile Val Tyr Val Asn Val Trp Ala  
 385 390 395 400

Ile Ser Arg Asp Lys Asp Phe Trp Glu Asn Pro Asp Glu Phe Leu Pro  
 405 410 415

Glu Arg Phe Leu Asn Ser Ser Val Asp Phe Lys Gly Gln Asp Phe Gly  
 420 425 430

Phe Leu Pro Phe Gly Ser Gly Arg Arg Val Cys Pro Gly Met Ala Leu  
 435 440 445

Gly Thr Ala Glu Val Glu Val Ser Leu Ala Asn Ile Leu Tyr Cys Phe  
 450 455 460

His Trp Glu Leu Pro Pro Gly Met Val Glu Asp Asp Val Asp Met Asp  
 465 470 475 480

Phe Leu Pro Gly Ile Thr Thr His Lys Lys Asn Ala Leu Tyr Leu Met  
 485 490 495

Ala Lys Ser Tyr Leu  
 500

<210> 55  
 <211> 1545  
 <212> DNA  
 <213> Sesamum indicum

<220>  
 <223> SiP288

<400> 55  
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 gtgtggttga attacagggc cctggcgtgg aactggctg tgatcgaaat gctggcgacg 120  
 cttctgcttc acgtgagccg gattcacgac aattcacgg agattatggg gaagtcccgaa 180  
 cggggaaactt ttcatttccg gggccctgg ttggctgata tggacatgtat ggggactgtct 240  
 gatcctgaga atgttcaacta cattatgagc gcgaacttcc agaaatccc gaaaggcccc 300

aagttcaggg	aaattttga	tgttcttgg	gatgggattt	tcaatgcaga	ttcggagtcc	360
tggagggacc	agagaagggt	tgccagggcc	ctgatttctc	accatggttt	cctccggttt	420
ctggcgaaga	tcagccgtga	gaaggtagag	aaaggcctga	ttccagttct	tgaaacggtg	480
tgctctggaaa	atcggttggt	cgatttgcag	gatttgc	agaggttgac	gtttgataca	540
acttgtacat	ttgttactgg	ttatgatcct	ggatgctgt	ctgttgattt	gcctgatgtt	600
ccttctcga	aaggcctaga	tgatgccgaa	gaagcgat	tcatgcgcca	tgtggttcct	660
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gctcgtgaag	tcttggatag	cgtcattggc	agttatatcg	cgctgaagcg	cggcgaat	780
agaagccgag	gaatttcgat	tgattgtgaa	aatgaagatg	gtgtggatct	gctcacgtct	840
tacatgactg	tgggagacga	tgttactcaa	acccatgatt	tgaaatgtga	tgacaagtcc	900
ttgagggaca	cgatactgaa	tctaattgatt	gcagggcggg	acacgacgag	ttctgctctg	960
acatggtttta	tatggcttgc	gtcgacacat	gctgaagtgg	aaaagaggat	cagggatgaa	1020
ctgaagtcct	ttctgcccgc	cgagaaacgt	gaaaagtggc	gtgtgtttgg	ggttgaagaa	1080
accaagaagt	tgttttacat	gcatggagca	atttgcgaag	ccctacgact	atatccacca	1140
gtcccggttcc	agcataagga	gcccgtggaa	ccagatatcc	ttccgagcgg	gcattttgtg	1200
gaaccgacaa	tgaaagtgtat	gttctcattt	tacgccccatgg	gacggatgga	atccgtttgg	1260
ggcgaggatt	gcttggaaatt	caagccggag	aggtggattt	ctgatagggg	atcgatcaag	1320
cacgagccct	catacaagtt	cttggcttcc	aatgctggtc	cgaggacttg	cttggggaaag	1380
gatgtggctt	tcgctcaggt	gaaggcagtg	gccgccacct	taatccataa	ctaccaagtt	1440
cacgtggcag	acggccaccg	cgtcgtgccc	aattttcca	tcatcctcta	catgaggaat	1500
ggattgaagg	ttagggttgc	caatagatgg	tctgctaaga	aaaat		1545

&lt;210&gt; 56

&lt;211&gt; 515

&lt;212&gt; PRT

&lt;213&gt; Sesamum indicum

&lt;220&gt;

&lt;223&gt; SiP288

&lt;400&gt; 56

Met	Val	Gly	Ile	Val	Tyr	Ile	Glu	Leu	Phe	Leu	Ser	Val	Met	Trp	Phe
1				5				10					15		

Met	Ala	Leu	Trp	Val	Trp	Leu	Asn	Tyr	Arg	Ala	Leu	Ala	Trp	Asn	Trp
				20			25					30			

Pro	Val	Ile	Gly	Met	Leu	Pro	Thr	Leu	Leu	Leu	His	Val	Ser	Arg	Ile
				35			40				45				

His	Asp	Asn	Cys	Thr	Glu	Ile	Met	Gly	Lys	Ser	Arg	Arg	Gly	Thr	Phe
				50			55			60					

His	Phe	Arg	Gly	Pro	Trp	Leu	Ala	Asp	Met	Asp	Met	Met	Gly	Thr	Ala
	65				70			75			80				

Asp	Pro	Glu	Asn	Val	His	Tyr	Ile	Met	Ser	Ala	Asn	Phe	Gln	Asn	Phe
				85			90			95					

Pro	Lys	Gly	Pro	Lys	Phe	Arg	Glu	Ile	Phe	Asp	Val	Leu	Gly	Asp	Gly
	100				105			110							

Ile	Phe	Asn	Ala	Asp	Ser	Glu	Ser	Trp	Arg	Asp	Gln	Arg	Arg	Val	Ala
	115				120			125							

Arg	Ala	Leu	Ile	Ser	His	His	Gly	Phe	Leu	Arg	Phe	Leu	Ala	Lys	Ile
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

130 135 140

Ser Arg Glu Lys Val Glu Lys Gly Leu Ile Pro Val Leu Glu Thr Val  
145 150 155 160

Cys Leu Glu Asn Arg Val Val Asp Leu Gln Asp Leu Phe Gln Arg Leu  
165 170 175

Thr Phe Asp Thr Thr Cys Thr Phe Val Thr Gly Tyr Asp Pro Gly Cys  
180 185 190

Leu Ser Val Asp Leu Pro Asp Val Pro Phe Ser Lys Ala Leu Asp Asp  
195 200 205

Ala Glu Glu Ala Ile Phe Met Arg His Val Val Pro Glu Lys Ile Trp  
210 215 220

Lys Leu Gln Arg Trp Phe Gly Val Gly Ser Glu Arg Lys Leu Ser Lys  
225 230 235 240

Ala Arg Glu Val Leu Asp Ser Val Ile Gly Arg Tyr Ile Ala Leu Lys  
245 250 255

Arg Gly Glu Met Arg Ser Arg Gly Ile Ser Ile Asp Cys Glu Asn Glu  
260 265 270

Asp Gly Val Asp Leu Leu Thr Ser Tyr Met Thr Val Gly Asp Asp Gly  
275 280 285

Thr Gln Thr His Asp Leu Lys Cys Asp Asp Lys Phe Leu Arg Asp Thr  
290 295 300

Ile Leu Asn Leu Met Ile Ala Gly Arg Asp Thr Thr Ser Ser Ala Leu  
305 310 315 320

Thr Trp Phe Ile Trp Leu Val Ser Thr His Ala Glu Val Glu Lys Arg  
325 330 335

Ile Arg Asp Glu Leu Lys Ser Phe Leu Pro Ala Gly Glu Arg Glu Lys  
340 345 350

Trp Arg Val Phe Gly Val Glu Glu Thr Lys Lys Leu Val Tyr Met His  
355 360 365

Gly Ala Ile Cys Glu Ala Leu Arg Leu Tyr Pro Pro Val Pro Phe Gln  
370 375 380

His Lys Glu Pro Val Glu Pro Asp Ile Leu Pro Ser Gly His Phe Val  
385 390 395 400

Glu Pro Thr Met Lys Val Met Phe Ser Leu Tyr Ala Met Gly Arg Met  
405 410 415

Glu Ser Val Trp Gly Glu Asp Cys Leu Glu Phe Lys Pro Glu Arg Trp  
420 425 430

Ile Ser Asp Arg Gly Ser Ile Lys His Glu Pro Ser Tyr Lys Phe Leu

435

440

445

Ala Phe Asn Ala Gly Pro Arg Thr Cys Leu Gly Lys Asp Val Ala Phe  
 450 455 460

Ala Gln Val Lys Ala Val Ala Ala Thr Leu Ile His Asn Tyr Gln Val  
 465 470 475 480

His Val Ala Asp Gly His Arg Val Leu Pro Asn Cys Ser Ile Ile Leu  
 485 490 495

Tyr Met Arg Asn Gly Leu Lys Val Arg Val Ala Asn Arg Trp Ser Ala  
 500 505 510

Lys Lys Asn  
 515

<210> 57

<211> 1494

<212> DNA

<213> Sesamum indicum

<220>

<223> SiP168

<400> 57

atggatctac tacttccct tggctccata ctctgttctg cagcatgcat ttggtttctc 60  
 cgggtggtcc tggaaacccaa tccaggccc cggaaatcag ccaatctcc tccaggccca 120  
 aaacaccttc ccataatcgg caacattttt gaggcttggg agaaacccc ccaatctctc 180  
 gccaaactct ccaaaaaccta cgggcccctg atgcgtctca agctggaaac catgacaaca 240  
 gttgttgtat cttcccccga aatctccagg atcgtgctgc aacaatatga ccaagtttc 300  
 tccagcccaa cacacgcaga tgccatccga gcacttgacc accacacaaca ttccgtcgcc 360  
 tggataccgg cggacaatca gtggcgaaa atccgtaaac tggcaaaaga gaagatgttt 420  
 tcgggccaaa agcttgcgtc gaaccaggcc ctgaggagg agaagttgcg taatttgc当地 480  
 gactatgtga atgaatgctc cgtagtggc caggctgtgg atattgggt agctgcctt 540  
 acgacgaccc ttaatctgtat atcggccact ctttctcgg tggatttgc tgattttgg 600  
 tctggttcgt ctcaagagct taaggatgtt atgagcggga tagcgtctat catcgccga 660  
 ccaaattttt ctgattgtt ccctttttt cggctgggtt atccacaggg catctccgc 720  
 cagaccacgt tacatttcaa caagtgtttt aagatctttt atgaaattat ccgtcaaagg 780  
 ctacagacca atgattcggg gacgaaaagt gacatgctga aagagcttct tggaaatcaac 840  
 cagaaagatg agtctgaatt gagcttgcac gagatcaagc atttacttctt ggatctactt 900  
 gtcgcaggaa cggacacaaac ttcaaggatcata gtggaaatggg caatgacgga gctagtgcgc 960  
 caccctgaga aaatgtcga agcccgaaaat gaggtaagaa atgtgggtt actgaataaaa 1020  
 gaaattcaag aatcagacat ctcaagactc ctttacctac gagcagtgg gaaagaaaagt 1080  
 ttcaggcttc accctgcaac ttctttatcg gtacccatcaca aggccgacga ggaagcagaa 1140  
 atcaatggct atatagtcctc taaaggagca caaggatctca tggacgtgtt ggccatcgcc 1200  
 agagatcaa gcatatggag gaaaccctgtt gtattcatgc ccgagaggtt cttggagaca 1260  
 gaaattgtat tccgtggcca acacttcgag ctgcttcctt ttggcgggg gaggaggatt 1320  
 tgcgtggggc tgccgttagc ctatcgatc atccatctcg tgcttgcac tttcataagc 1380  
 gactatgatt gggaaacttga aggaggcgtt aaaactgaag aaatggacat gaggaaaag 1440  
 ttcggcctca ccctgaaaaa agccattctt ctcaaggcac ttccagttaa aattt 1494

<210> 58

<211> 498

<212> PRT

<213> Sesamum indicum

<220>

<223> SiP168

<400> 58

Met Asp Leu Leu Leu Ser Leu Val Leu Leu Leu Cys Ser Ala Ala Cys  
1 5 10 15

Ile Trp Phe Leu Arg Val Val Leu Lys Pro Asn Pro Gly Pro Arg Lys  
20 25 30

Ser Ala Asn Leu Pro Pro Gly Pro Lys Pro Leu Pro Ile Ile Gly Asn  
35 40 45

Ile Leu Glu Leu Gly Glu Lys Pro His Gln Ser Leu Ala Lys Leu Ser  
50 55 60

Lys Thr Tyr Gly Pro Leu Met Arg Leu Lys Leu Gly Thr Met Thr Thr  
65 70 75 80

Val Val Val Ser Ser Pro Glu Ile Ser Arg Ile Val Leu Gln Gln Tyr  
85 90 95

Asp Gln Val Phe Ser Ser Arg Thr His Ala Asp Ala Ile Arg Ala Leu  
100 105 110

Asp His His Lys His Ser Val Ala Trp Ile Pro Ala Asp Asn Gln Trp  
115 120 125

Arg Lys Ile Arg Lys Leu Cys Lys Glu Lys Met Phe Ser Gly Gln Lys  
130 135 140

Leu Asp Ala Asn Gln Gly Leu Arg Arg Glu Lys Leu Arg Asn Leu Gln  
145 150 155 160

Asp Tyr Val Asn Glu Cys Cys Val Ser Gly Gln Val Val Asp Ile Gly  
165 170 175

Val Ala Ala Phe Thr Thr Leu Asn Leu Ile Ser Ala Thr Leu Phe  
180 185 190

Ser Val Asp Phe Ala Asp Phe Gly Ser Gly Ser Ser Gln Glu Leu Lys  
195 200 205

Asp Val Met Ser Gly Ile Ala Ser Ile Ile Gly Arg Pro Asn Phe Ala  
210 215 220

Asp Cys Phe Pro Leu Leu Arg Leu Val Asp Pro Gln Gly Ile Phe Arg  
225 230 235 240

Gln Thr Thr Leu His Phe Asn Lys Cys Phe Lys Ile Phe Asp Glu Ile  
245 250 255

Ile Arg Gln Arg Leu Gln Thr Asn Asp Ser Gly Thr Lys Ser Asp Met  
260 265 270

Leu Lys Glu Leu Leu Glu Ile Asn Gln Lys Asp Glu Ser Glu Leu Ser  
 275 280 285  
 Phe Asp Glu Ile Lys His Leu Leu Leu Asp Leu Leu Val Ala Gly Thr  
 290 295 300  
 Asp Thr Thr Ser Val Thr Val Glu Trp Ala Met Thr Glu Leu Val Arg  
 305 310 315 320  
 His Pro Glu Lys Met Ser Lys Ala Arg Asn Glu Leu Arg Asn Val Val  
 325 330 335  
 Gly Leu Asn Lys Glu Ile Gln Glu Ser Asp Ile Ser Arg Leu Pro Tyr  
 340 345 350  
 Leu Arg Ala Val Val Lys Glu Ser Phe Arg Leu His Pro Ala Thr Pro  
 355 360 365  
 Leu Ser Val Pro His Lys Ala Asp Glu Glu Ala Glu Ile Asn Gly Tyr  
 370 375 380  
 Ile Val Pro Lys Gly Ala Gln Val Leu Met Asn Val Trp Ala Ile Gly  
 385 390 395 400  
 Arg Asp Ser Ser Ile Trp Arg Asn Pro Asp Val Phe Met Pro Glu Arg  
 405 410 415  
 Phe Leu Glu Thr Glu Ile Asp Val Arg Gly Gln His Phe Glu Leu Leu  
 420 425 430  
 Pro Phe Gly Gly Arg Arg Ile Cys Val Gly Leu Pro Leu Ala Tyr  
 435 440 445  
 Arg Met Ile His Leu Val Leu Ala Thr Phe Ile Ser Asp Tyr Asp Trp  
 450 455 460  
 Lys Leu Glu Gly Gly Leu Lys Thr Glu Glu Met Asp Met Ser Glu Lys  
 465 470 475 480  
 Phe Gly Leu Thr Leu Gln Lys Ala Ile Pro Leu Lys Ala Leu Pro Val  
 485 490 495  
 Lys Ile

<210> 59  
 <211> 1545  
 <212> DNA  
 <213> Sesamum indicum

<220>  
 <223> SiP236

<400> 59  
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 tacgttctct tctctgttct tattgttaga ttccctcagca gaaagctgct cgggaagaag 120

aggtaaccatc	ccattgggtgg	taccgtgttc	aaccagctgc	tgaacttcta	taggttgcatt	180
gattatataatgg	ctgatcttgc	agggaaagtac	aagacttaca	gactgattgc	ccctttcgaa	240
actgagggtct	atacatctga	ccccgctaatt	gttggacaca	tgttggaaac	gaatttcgaa	300
agttatggca	agggaccta	caattgcagc	attctggggg	atttgtttgg	tgaaggaatt	360
ttcgcaatcg	atggccataa	gtggagggag	cagagaaaaag	tgtcaagcct	tgagtttct	420
acaagggttc	tgagggatta	cagtagcatc	gtcttcagga	aaaacgcgt	aaggctcgca	480
aaaattctgt	ctggagctgc	aacttccaac	caaccagtgg	atattcaaga	tctttcatg	540
aaatcaactt	ttgattctat	ttcggaaagt	gctttaggag	ttgagcttga	cagcttgggt	600
ggttcaaatg	aagaagggtgc	caaafftagc	attgctgcag	acgacgtgag	tatgaggaca	660
cttggagat	acgtggatgt	tctgtggaa	ttaaagagag	ctctaaatgt	tggttcagaa	720
gcaaaaactga	agaaaaagcct	tcaagtgggt	gatgaatttgc	tgtataagct	gattcatagt	780
aggactcagc	aaatgaacat	gccaggaaat	gattctgtt	tgcagctgaa	gaaagacgac	840
attttgtcaa	gattctgca	acttactgag	gccactccca	agtacttgag	ggacataaca	900
ataagcttta	tagttgttgg	taaagacaca	acagcaacaa	ctctctcttgc	gtttatttac	960
atgccttgca	agtatcctca	tgttcaggaa	aagggtggagc	aagagataaa	agatgcgaca	1020
ggctgcaaaag	aggttagcaga	tatctcagaa	ttttcagcct	gtgtgacaga	agaagctttg	1080
ggcaagatgc	attatctcca	tgcagcatttgc	acagaaacac	tgaggatttgc	tccagcagg	1140
gcgggtggatg	caaagcaatg	tttgcgtgtat	gatataatgc	cggatgggttgc	cagtgttaag	1200
aagggggaca	tgggtggctt	tcaaccatata	gcaatgggaa	ggatgaaatc	catatgggttgc	1260
aatgatgcag	aagagtccaa	accagagaga	tggcttgaca	aaaacgggttgc	cttccagcag	1320
gccagccctt	ttaagtttac	agctttccag	gccggcccttgc	gtcttgcgttgc	ggggaaagag	1380
tttgcattatc	ggcagatgaa	gatatttctca	gccattctgc	tgagatttcttgc	taccatgaaa	1440
ctaagtgtatg	aaagaaaagac	agtaaaactac	agaccaatgc	tcactcttgc	catcgacgg	1500
ggtctcatttgc	tccgcccatttgc	tcacagaatgc	gacgagaaaa	ctgca		1545

&lt;210&gt; 60

&lt;211&gt; 515

&lt;212&gt; PRT

&lt;213&gt; Sesamum indicum

&lt;220&gt;

&lt;223&gt; SiP236

&lt;400&gt; 60

Met	Ala	Asn	Pro	Ile	Asp	Phe	Leu	Leu	Ser	Pro	Thr	Pro	Tyr	Val	Ala
1				5					10				15		

Thr	Thr	Leu	Leu	Tyr	Val	Leu	Phe	Ser	Val	Leu	Ile	Val	Arg	Phe	Leu
				20				25				30			

Ser	Arg	Lys	Leu	Leu	Gly	Lys	Lys	Arg	Tyr	His	Pro	Ile	Gly	Gly	Thr
		35					40				45				

Val	Phe	Asn	Gln	Leu	Leu	Asn	Phe	Tyr	Arg	Leu	His	Asp	Tyr	Met	Ala
	50				55				60						

Asp	Leu	Ala	Gly	Lys	Tyr	Lys	Thr	Tyr	Arg	Leu	Ile	Ala	Pro	Phe	Arg
	65				70			75				80			

Thr	Glu	Val	Tyr	Thr	Ser	Asp	Pro	Ala	Asn	Val	Glu	His	Met	Leu	Lys
				85					90			95			

Thr	Asn	Phe	Glu	Ser	Tyr	Gly	Lys	Gly	Pro	Tyr	Asn	Cys	Ser	Ile	Leu
	100				105						110				

Gly	Asp	Leu	Phe	Gly	Glu	Ile	Phe	Ala	Ile	Asp	Gly	His	Lys	Trp
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

115	120	125	
Arg Glu Gln Arg Lys Val Ser Ser	Leu Glu Phe Ser Thr Arg Val Leu		
130	135	140	
Arg Asp Tyr Ser Ser Ile Val Phe Arg Lys Asn Ala Val Arg Leu Ala			
145	150	155	160
Lys Ile Leu Ser Gly Ala Ala Thr Ser Asn Gln Pro Val Asp Ile Gln			
165	170	175	
Asp Leu Phe Met Lys Ser Thr Phe Asp Ser Ile Ser Glu Val Ala Leu			
180	185	190	
Gly Val Glu Leu Asp Ser Leu Gly Gly Ser Asn Glu Glu Gly Ala Lys			
195	200	205	
Phe Ser Ile Ala Ala Asp Asp Val Ser Met Arg Thr Leu Trp Arg Tyr			
210	215	220	
Val Asp Val Leu Trp Lys Leu Lys Arg Ala Leu Asn Val Gly Ser Glu			
225	230	235	240
Ala Lys Leu Lys Lys Ser Leu Gln Val Val Asp Glu Phe Val Tyr Lys			
245	250	255	
Leu Ile His Ser Arg Thr Gln Gln Met Asn Met Pro Gly Asn Asp Ser			
260	265	270	
Val Met Gln Leu Lys Lys Asp Asp Ile Leu Ser Arg Phe Leu Gln Leu			
275	280	285	
Thr Glu Ala Thr Pro Lys Tyr Leu Arg Asp Ile Thr Ile Ser Phe Ile			
290	295	300	
Val Ala Gly Lys Asp Thr Thr Ala Thr Thr Leu Ser Trp Phe Ile Tyr			
305	310	315	320
Met Leu Cys Lys Tyr Pro His Val Gln Glu Lys Val Glu Gln Glu Ile			
325	330	335	
Lys Asp Ala Thr Gly Cys Lys Glu Val Ala Asp Ile Ser Glu Phe Ser			
340	345	350	
Ala Cys Val Thr Glu Glu Ala Leu Gly Lys Met His Tyr Leu His Ala			
355	360	365	
Ala Leu Thr Glu Thr Leu Arg Ile Tyr Pro Ala Val Ala Val Asp Ala			
370	375	380	
Lys Gln Cys Leu Cys Asp Asp Ile Met Pro Asp Gly Phe Ser Val Lys			
385	390	395	400
Lys Gly Asp Met Val Ala Tyr Gln Pro Tyr Ala Met Gly Arg Met Lys			
405	410	415	
Ser Ile Trp Gly Asn Asp Ala Glu Glu Phe Lys Pro Glu Arg Trp Leu			

420 425 430

Asp Lys Asn Gly Cys Phe Gln Gln Ala Ser Pro Phe Lys Phe Thr Ala  
435 440 445

Phe Gln Ala Gly Pro Arg Leu Cys Leu Gly Lys Glu Phe Ala Tyr Arg  
450 455 460

Gln Met Lys Ile Phe Ser Ala Ile Leu Leu Arg Phe Phe Thr Met Lys  
465 470 475 480

Leu Ser Asp Glu Arg Lys Thr Val Asn Tyr Arg Pro Met Leu Thr Leu  
485 490 495

Leu Ile Asp Gly Gly Leu Ile Val Arg Pro Phe His Arg Met Asp Glu  
500 505 510

Lys Thr Ala  
515

<210> 61

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, Bam-SST-FW2

<400> 61

tggatcccaa ctcatagagt actcaaaaac gctt

34

<210> 62

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP189-Nco-RV

<400> 62

gcaaatgatc aaccatggtg ttct

24

<210> 63

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, GR-SST-RV1

<400> 63  
cacatgaacg agacgaactg ggtttgg

27

<210> 64  
<211> 506  
<212> PRT  
<213> *Sesamum radiatum*

<220>  
<223> SrSiP189

<400> 64  
Met Glu Ala Glu Met Leu Tyr Ser Ala Leu Ala Leu Thr Phe Ala Ile  
1 5 10 15  
Phe Met Val Tyr Arg Ile Leu Ser Asn Ser Gln Glu Lys Ser Ser Leu  
20 25 30  
Ile Lys Leu Pro Pro Ser Pro Pro Gly Trp Leu Pro Val Ile Gly His  
35 40 45  
Val His Leu Met Lys Asn Leu Leu His Arg Thr Leu Tyr Asp Phe Ser  
50 55 60  
Gln Lys Leu Gly Pro Ile Phe Ser Leu Arg Phe Gly Thr Arg Leu Val  
65 70 75 80  
Val Val Val Ser Ser Ser Leu Val Glu Glu Cys Phe Thr Lys Tyr  
85 90 95  
Asp Ile Val Leu Ala Asn Arg Pro Gln Pro Ser Val Asp Arg Arg Ser  
100 105 110  
Leu Gly Phe Ser Thr Thr Ser Val Ile Gly Ala Pro Tyr Gly Asp His  
115 120 125  
Trp Arg Asn Leu Arg Lys Leu Cys Asp Leu Glu Val Phe Ala Pro Thr  
130 135 140  
Arg Leu Ala Ser Phe Leu Ser Ile Arg Leu Asp Glu Arg Asp Arg Met  
145 150 155 160  
Ile Ser Ser Leu Tyr Lys Ile Ser Ser Ala Gly Phe Ala Lys Val Asn  
165 170 175  
Leu Glu Thr Lys Ile Val Glu Leu Thr Phe Asn Asn Ile Met Arg Met  
180 185 190  
Val Ala Gly Lys Arg Tyr Tyr Gly Glu Glu Ala Glu Asp Asp Glu Glu  
195 200 205  
Ala Lys Arg Phe Arg Asp Leu Thr Lys Glu Ala Leu Glu Leu Thr Ser  
210 215 220

Ala Ser Asn Pro Gly Glu Ile Phe Pro Ile Leu Arg Trp Leu Gly Phe  
225 230 235 240

Asn Gly Leu Glu Lys Lys Leu Ala Val His Ala Arg Lys Thr Asp Glu  
245 250 255

Phe Met Gln Gly Leu Leu Asp Glu His Arg Arg Gly Glu Arg Gln Asn  
260 265 270

Thr Met Val Asp His Leu Leu Ser Leu Gln Glu Ser Gln Pro Glu Tyr  
275 280 285

Tyr Thr Asp Glu Ile Ile Thr Gly Leu Ile Val Ala Leu Ile Ile Ala  
290 295 300

Gly Thr Asp Ala Ser Val Val Thr Thr Glu Trp Ala Met Ser Leu Ile  
305 310 315 320

Leu Asn His Pro Gln Val Leu Glu Lys Ala Arg Lys Glu Leu Asp Thr  
325 330 335

Leu Val Gly His Glu Arg Met Val Asp Glu His Asp Leu Pro Lys Leu  
340 345 350

Arg Tyr Leu His Cys Ile Val Leu Glu Thr Leu Arg Leu Phe Pro Ser  
355 360 365

Val Pro Thr Leu Val Pro His Glu Pro Ser Glu Asp Cys Lys Ile Gly  
370 375 380

Gly Tyr Asn Val Pro Lys Gly Thr Met Ile Leu Val Asn Ala Trp Ala  
385 390 395 400

Ile His Arg Asp Pro Lys Val Trp Asp Asp Pro Leu Ser Phe Lys Pro  
405 410 415

Asp Arg Phe Glu Thr Met Glu Val Glu Thr His Lys Leu Leu Pro Phe  
420 425 430

Gly Met Gly Arg Arg Ala Cys Pro Gly Ala Gly Leu Ala Gln Lys Phe  
435 440 445

Val Gly Leu Ala Leu Gly Ser Leu Ile Gln Cys Phe Glu Trp Glu Arg  
450 455 460

Met Ser Ala Glu Lys Ile Asp Leu Asn Glu Gly Ser Gly Ile Thr Leu  
465 470 475 480

Pro Lys Ala Lys Thr Leu Glu Ala Met Cys Lys Pro Arg His Ile Met  
485 490 495

Glu Arg Val Leu Arg Gln Val Ser Asn Val  
500 505

&lt;211&gt; 1518

&lt;212&gt; DNA

&lt;213&gt; Sesamum radiatum

&lt;220&gt;

&lt;223&gt; SrSiP189

&lt;400&gt; 65

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cgtcaggtt	cgaacg	c				1518

&lt;210&gt; 66

&lt;211&gt; 20

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, NtUBQ-FW

&lt;400&gt; 66

ggaatgcaga tcttcgtcaa

20

&lt;210&gt; 67

&lt;211&gt; 18

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Artificially

## Synthesized Primer Sequence, NtUBQ-RW

<400> 67  
cctagaaacc accacgga 18

<210> 68  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP189-bam-FW

<400> 68  
tttcagcca acatggaagc tgaa 24

<210> 69  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, SiP189-nco-RV

<400> 69  
gcaaatgatc aaccatggtg ttct 24

<210> 70  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, STAR-LF1

<400> 70  
acgaagttt gcggccaatt aaccc 25

<210> 71  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, STAR-LR1

<400> 71  
ccacctgacg tcgcggccta atacg 25

<210> 72  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, M13-47(F)

<400> 72  
cgccagggtt ttcccaagtca cgac

24

<210> 73  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, RV-M(R)

<400> 73  
gagcggataaa caatttcaca cagg

24

<210> 74  
<211> 3069  
<212> DNA  
<213> Sesamun indium

<400> 74  
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caatgaaattt gacagatgac gtcttagtgt gtgtgaatgt gtgatatttt tgcagaatatt 180  
tgtaaaagag ggttcaccaa atctcaactat tttgtgacta attgactatttt tttgcagaaaa 240  
attcgtatattt agtataagggt cttggtaaaa ttaatttaattt atataacaaa tgtgatatat 300  
ttaattttgtt attaatttttt ttatattttgt tttgttaattt gtttaggattt tatataagaa 360  
tttggaaaaaaa tgagatgttt ttttgttaattt caaatttacac aatatcatgtt attgggtttt 420  
tcgtcctgaa gtcgcttcaaattt aatttgcattttt atcggcggac ttgaacagac gagtgaatgg 480  
acatgattta aaatttttaag gataaaatata tatagtatca gtttatcaaaaa taaaaaattttt 540  
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aagcactaga agtgcaattt taaatccaaac ggtaccttagt ttaatttgcataattt aaaaaattttt 660  
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tcagccaa	cac	cac	cac	cac	cac	3069

&lt;210&gt; 75

&lt;211&gt; 29

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, gSST-FW1

&lt;400&gt; 75

aatgaaattt

29

&lt;210&gt; 76

&lt;211&gt; 30

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Artificially  
Synthesized Primer Sequence, gSST-RV2

&lt;400&gt; 76

ctgcgattt

30

&lt;210&gt; 77

&lt;211&gt; 2815

&lt;212&gt; DNA

&lt;213&gt; Sesamum radiatum

&lt;400&gt; 77

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&lt;210&gt; 78

&lt;211&gt; 507

&lt;212&gt; PRT

<213> Sesumum alatum

<400> 78

Met Glu Ala Glu Met Leu Tyr Ser Ala Leu Ala Leu Thr Phe Ala Ile  
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Ile Met Val His Arg Ile Leu Ser Asn Ser Gln Asn Lys Arg Ser Leu  
20 25 30

Ile Asn Leu Pro Pro Ser Pro Pro Gly Trp Leu Pro Ile Ile Gly His  
35 40 45

Leu His Leu Ile Lys Asn Pro Leu His Arg Thr Leu Tyr Asp Cys Ser  
50 55 60

Gln Lys Leu Gly Ser Ile Phe Ser Val Trp Phe Gly Ser Arg Leu Val  
65 70 75 80

Val Val Val Ser Ser Ser Leu Val Glu Glu Cys Phe Thr Lys Tyr  
85 90 95

Asp Ile Val Leu Ala Asn Arg Pro Asp Leu His Leu Asp Leu Arg Ser  
100 105 110

Leu Gly Ala Ser Thr Ile Ser Val Ile Gly Ala Pro Tyr Gly Asp His  
115 120 125

Trp Arg Asn Leu Arg Lys Leu Cys Asp Leu Glu Val Phe Ala Pro Thr  
130 135 140

Arg Leu Ala Ser Phe Leu Ser Ile Arg Arg Asp Glu Arg Asp Arg Met  
145 150 155 160

Ile Ser Gly Leu Tyr Lys Ile Ser Ser Ala Gly Leu Ala Lys Val Asn  
165 170 175

Leu Glu Ala Lys Ile Ala Glu Leu Thr Phe Asn Asn Leu Met Arg Met  
180 185 190

Leu Ala Gly Lys Ile Tyr Tyr Gly Glu Glu Ala Glu Asp Glu Glu Glu  
195 200 205

Ala Lys Arg Phe Arg Asp Met Thr Lys Glu Ala Leu Glu Leu Met Asn  
210 215 220

Thr Phe Asn Leu Ala Glu Ile Phe Pro Ile Leu Arg Trp Ile Gly Cys  
225 230 235 240

Asn Gly Phe Glu Lys Gln Leu Pro Val His Ser Arg Lys Thr Asp Glu  
245 250 255

Ile Met Gln Gly Leu Leu Asp Glu His Arg Arg Gly Glu Arg Gln Asn  
260 265 270

Thr Met Val Gly His Leu Leu Ser Leu Gln Glu Ser Gln Pro Asp Tyr  
275 280 285

Tyr Thr Asp Glu Ile Ile Thr Gly Leu Ile Ile Ser Leu Ile Ile Ala  
 290 295 300  
 Gly Thr Asp Ala Ser Val Val Thr Thr Glu Trp Ala Met Ser Leu Leu  
 305 310 315 320  
 Leu Asn His Pro Lys Val Leu Glu Lys Ala Arg Gln Glu Met Asp Thr  
 325 330 335  
 Leu Val Gly His Glu Arg Met Val Glu Glu Asp Asp Leu Pro Lys Leu  
 340 345 350  
 Arg Tyr Leu His Tyr Ile Ile Leu Glu Thr Leu Arg Leu Phe Pro Ser  
 355 360 365  
 Val Pro Thr Leu Val Pro His Glu Pro Ser Glu Asp Cys Asn Ile Gly  
 370 375 380  
 Gly Tyr Asn Val Pro Lys Gly Thr Met Ile Ile Val Asn Ala Trp Ala  
 385 390 395 400  
 Ile His Arg Asp Pro Lys Val Trp Asp Asp Pro Met Ser Phe Lys Pro  
 405 410 415  
 Asp Arg Phe Glu Thr Leu Glu Val Glu Thr His Lys Leu Leu Pro Phe  
 420 425 430  
 Gly Met Gly Arg Arg Gly Cys Pro Gly Ala Gly Leu Ala Lys Lys Phe  
 435 440 445  
 Val Gly Leu Ala Leu Ala Ser Leu Ile Gln Cys Phe Asp Trp Glu Arg  
 450 455 460  
 Ile Ser Ala Glu Lys Ile Asp Leu Lys Glu Gly Ala Ser Arg Ile Thr  
 465 470 475 480  
 Leu Pro Lys Ala Thr Thr Leu Glu Ala Met Cys Lys Pro Arg His Val  
 485 490 495  
 Met Glu Lys Val Leu Arg Gln Val Ser Asn Val  
 500 505

<210> 79  
 <211> 1524  
 <212> DNA  
 <213> Sesumum alatum

<400> 79  
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 ggttggctgc cgattatcgg ccacccatc ctcataaaaa atccactcca tagaacacta 180  
 tacgactgct cccagaaact gggatccata ttctccgtct ggttcgggtc cccgcctcg 240  
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